**AMENDMENTS TO THE SPECIFICATION:**

Please amend the paragraph beginning at page 7, line 5, as follows:

Consequently, an object ~~of the present invention~~ is to provide an improved route determination mechanism.

Please amend the paragraph beginning at page 7, line 19, as follows:

Another object ~~of the invention~~ is to provide a cost or route determination mechanism that reflects forward decision oriented operation.

Please amend the paragraph beginning at page 7, line 22, as follows:

A further object ~~of the invention~~ is to provide a cost or route determination mechanism that is tailored for a broadcast medium (which radio inherently is), and tailored for a fast varying channel quality as the radio inherently provide

Please amend the paragraph beginning at page 7, line 26, as follows:

Another object ~~of the present invention~~ is to provide a cost or route determination mechanism that is tailored to support forward decision based routing.

Please amend the paragraph beginning at page 8, line 1, as follows:

Yet, another object ~~of the present invention~~ is to provide a cost or route determination mechanism that is tailored to account for the way in which nodes are connected for each source-destination pair.

Please amend the paragraph beginning at page 8, line 5, as follows:

Another object ~~of the present invention~~ is to provide a cost or route determination method that is tailored to integrate forward decision oriented topology control.

Please amend the paragraph beginning at page 8, line 8, as follows:

~~Finally, an~~ An additional object ~~of the present invention~~ is to provide a cost or route determination method that does not react violently at link changes/failures.

Please amend the paragraph beginning at page 8, line 11, as follows:

Specifically, ~~the invention provides~~ a method is provided for cost determination that determines a plurality of simultaneously potential or favorable next hop nodes for at least one of the nodes between each source and a destination node pair, whereby a mesh-like path comprising a plurality of simultaneously potential routes or paths is defined between the source and destination node. This mesh-like structure is typically determined in a distributed manner and results from a cost optimization process. The cost optimization should preferably consider stochastic variations that for example are caused by the wireless medium. In particular, considerations to FDBR-schemes can be given.

Please amend the paragraph beginning at page 8, line 20, as follows:

~~The present invention preferably provides a~~ A cost optimization method is provided that determines a plurality of simultaneously potential next hop nodes that jointly optimizes a predetermined cost function for at least one node between a source and a destination node, thereby also determining an optimal cost for the considered node.

Please amend the paragraph beginning at page 8, line 25, as follows:

~~The present invention provides~~ Also provided are a system and a node that ~~enables~~ enable the ~~above~~ above-mentioned method.

Please amend the paragraph beginning at page 8, line 30, as follows:

~~The method according to the invention~~ This technology offers the following example advantages:

Please delete the paragraph beginning at page 9, line 11, which starts with:

The invention, together with...

Please amend the paragraph beginning at page 9, line 16, as follows:

Fig. 1B is a schematic overview of an example embodiment of a multihop network ~~according to the invention~~;

Please amend the paragraph beginning at page 9, line 19, as follows:

Fig. 2B is schematic overview of a multihop network with routes determined according to an example embodiment ~~of a method according to the invention~~,

Please amend the paragraph beginning at page 9, line 21, as follows:

Fig. 3A is a diagram according to an exemplification of an example embodiment ~~according to the invention~~,

Please amend the paragraph beginning at page 9, line 23, as follows:

Fig. 3B is a diagram of another exemplification of an example embodiment ~~according to the invention~~,

Please amend the paragraph beginning at page 9, line 25, as follows:

Fig. 4 is a schematic diagram showing the progress of an example embodiment of a ~~method according to the invention~~,

Please amend the paragraph beginning at page 9, line 27, as follows:

Fig. 5 is a diagram of another exemplification of an example embodiment ~~according to the invention~~,

Please amend the paragraph beginning at page 9, line 29, as follows:

Fig. 6A is an example of a simplified network ~~according to the invention~~,

Please amend the paragraph beginning at page 10, line 1, as follows:

Fig. 6B shows the network from Fig. 6A after an example embodiment ~~of the method according to the invention has been applied~~,

Please amend the paragraph beginning at page 10, line 3, as follows:

Fig. 7 is flow diagram of an example embodiment ~~according to the invention~~,

Please amend the paragraph beginning at page 10, line 4, as follows:

Fig. 8 is a block diagram of an example embodiment of a system ~~according to the invention~~.

Please amend the paragraph beginning at page 10, line 8, as follows:

The ~~invention will~~ technology in the following be described in the context of a wireless multihop communications network. It is however implied that the ~~invention~~ technology is equally applicable to conventional wireline networks.

Please amend the paragraph beginning at page 10, line 12, as follows:

Basically, as stated before, an example embodiment ~~of the method according to the invention~~ determines a plurality of simultaneously potential or favorable next hop nodes for at least one node between a source and a destination node in a communications network. This is preferably performed by ~~means of~~ a cost optimization procedure. By doing so, a mesh-like structure of simultaneously potential routes is determined between the source and destination node.

Please amend the paragraph beginning at page 12, line 27, as follows:

An optional amendment to the above described embodiment ~~of the method according to the invention~~ is to also determine appropriate link parameters. This is facilitated by the following:

Please amend the paragraph beginning at page 13, line 20, as follows:

With the above discussed amendment the example embodiment ~~of the method according to the invention~~ will output $Cost_i$, $S''(opt)$, $Par(opt)$, i.e., the cost seen from node $i$ to the

destination node, the set of simultaneously potential or favorable next hop nodes over which data can be forwarded, and the optimum link parameters to use when forwarding data.

Please amend the paragraph beginning at page 13, line 20, as follows:

An exemplification of how an example embodiment ~~of the method according to the invention~~ operates is shown in Fig. 3A. In this diagram the cost for a node *i* is plotted as a function of some link parameter *Par*. It is assumed that the node *i* sees two nodes, *A* and *B*, each with an associated cost $Cost_A$ and $Cost_B$. Out of these two nodes, three power sets can be constructed according to the embodiment of the method according to the invention, i.e. $S_1'', S_2''$ and $S_3''$. Out of the three sets, $S_3''$ is the most optimal here, i.e. $S''(opt)=S_3''$. In other words, $S_3''$ minimizes the cost for node *i*. Thereby two simultaneously potential or favorable next hops are determined for the node.

Please amend the paragraph beginning at page 14, line 7, as follows:

Another exemplary application ~~of the proposed embodiment of a method according to the invention~~ is given with reference to Fig. 3B, when utilized in a forwarding procedure.

Please amend the paragraph beginning at page 17, line 1, as follows:

Now the rate dependent metric is formalized. The scenario that is considered is to minimize the average end-to-end time resource utilization, constrained that a transmission will occur after indicating transmission with a probe. This situation arises in a multihop forwarding scheme such as MDF [~~[~~7~~], that~~] that first sends a short probe to multiple nodes, receives multiple responses indicating the rate that can be used to each user, and subsequently select a packet to be

transmitted to a selected user. Here, the aspect of flow selection, i.e. is part of MDF, is neglected. (Since a transmission has been indicated by a probe, and other nodes may have adapted their rate selection in accordance to the experienced interference, it makes no sense to postpone the transmission to a later stage)

Please amend the paragraph beginning at page 17, line 12, as follows:

Now consider a node $i$ that considers a set of K nodes that is a set in the superset of all ~~neighbour~~neighbor nodes. Now, the nodes are ordered (and enumerated) such that

$$C'_1 \le C'_2 \le \ldots \le C'_K .$$

,where $C'_k = \Delta C_{ik} + C_k$, $k \in \{0,\ldots,K\}$, and $\Delta C_{ik}$ is the average cost from node $i$ to node $k$, and $C_k$ is the cost at node $k$ towards the considered destination (in ~~practise~~practice this is done for all destinations, but here only one destination is examined). Now the rate dependency is introduced by setting

Please amend the paragraph beginning at page 18, line 9, as follows:

Then, $\beta_k$ is the unconditional probability that node $k$ is available for reception, which is tested by the probing process for MDF [~~1~~7], described above. The reason why a node may not always be available for reception is that it may not always be receiving, e.g. due to being in transmission mode or in sleep mode.

Please amend the paragraph beginning at page 18, line 17, as follows:

Another exemplification of an example embodiment ~~of the method according to the invention~~ is given below with reference to Fig. 4.

Please amend the paragraph beginning at page 19, line 19, as follows:

Thereby, according to ~~the~~ an example embodiment ~~of the method according to the invention~~, two simultaneously potential or favorable next hops and likewise two simultaneously potential paths or routes are provided from node 2, instead of one singular hop or path that would have been the case for the earlier discussed Bellman-Ford.

Please amend the paragraph beginning at page 20, line 23, as follows:

An optional complementary method for reducing the complexity of the method ~~according to the invention~~ will be described with reference to Fig. 6A, 6B and 7. From an algorithmic point of view, it is sensible to start to consider the lowest cost nodes in $S'$ for the first sets $S_j''$ as one can exclude the higher cost nodes quickly.

Please amend the paragraph beginning at page 21, line 1, as follows:

In Fig. 7 a flow diagram of an example embodiment of an algorithm for reducing the complexity ~~of the invention~~ is illustrated. In this heuristic algorithm, costs to the neighbors are in an initial step (not shown) calculated in a Bellman-Ford like manner for all nodes in S''. Rather than selecting the optimum cost and next hop node, the nodes are sorted in steps S2-S10 according to the calculated cost. In the same step S2 a cost vector and a node vector are determined. As an example, according to Fig. 6A, the resulting cost vector and node vector may be $\{C_{i\text{-}4\text{-}d}, C_{i\text{-}1\text{-}d}, C_{i\text{-}}$

$_{3\text{-}d}$ , $C_{i\text{-}2\text{-}d}$ } and {4,1,3,2} where e.g. $C_{i\text{-}4\text{-}d}$ is the optimum cost for the path from node *i* to node 4 to the destination node *d*. $C_{i\text{-}4\text{-}d}$ is a function of the cost from node *i* to node 4, $C_{i\text{-}4}$, and the cost from node 4 to the destination $C_{4\text{-}d}$.

Please amend the paragraph beginning at page 21, line 28, as follows:

In Fig. 8 a schematic block diagram of an example embodiment of a node 10 in a multihop communication network ~~according to the invention~~ is shown. The node 10 comprises a radio transceiver module (RX/TX module) 20 that supplies the necessary receiving and transmission functionalities in a known manner. The node 10 also comprises route determination means 30 adapted for determining routes ~~according to the invention~~ between a source and destination node. The route determination 30 means in turn comprises means for cost optimization 31, cost determination 32 and means 33 for route optimization. Finally, the node 10 comprises means for packet forwarding 40 based on an output from the means for route determination 30.

Please amend the paragraph beginning at page 22, line 9, as follows:

It will be understood by those skilled in the art that various modifications and changes may be made. ~~to the present invention without departure from the~~ The scope ~~thereof, which~~ of the invention is defined by the appended claims.